CLAIMS

What is claimed is:

1. A peptide that ameliorates one or more symptoms of an inflammatory condition, said peptide having the formula:

$$X^1\text{-}X^2\text{-}X^3{}_n\text{-}X^4$$

wherein:

n is 0 or 1;

X^1 is a hydrophobic amino acid and/or bears a hydrophobic protecting group;

X^4 is a hydrophobic amino acid and/or bears a hydrophobic protecting group; and

when n is 0:

X^2 is an amino acid selected from the group consisting of an acidic amino acid, a basic amino acid, and a histidine;

when n is 1:

X^2 and X^3 are independently an acidic amino acid, a basic amino acid, an aliphatic amino acid, or an aromatic amino acid such that

when X^2 is an acidic amino acid; X^3 is a basic amino acid, an aliphatic amino acid, or an aromatic amino acid;

when X^2 is a basic amino acid; X^3 is an acidic amino acid, an aliphatic amino acid, or an aromatic amino acid; and

when X^2 is an aliphatic or aromatic amino acid, X^3 is an acidic amino acid, or a basic amino acid;

said peptide converts pro-inflammatory HDL to anti-inflammatory HDL or makes anti-inflammatory HDL more anti-inflammatory; and

said peptide does not have the amino acid sequence Lys-Arg-Asp-Ser (SEQ ID NO:238) in which Lys-Arg-Asp and Ser are all L amino acids.

2. The peptide of claim 1, wherein n is 0.

3. The peptide of claim 2, wherein wherein X^1 and X^4 are independently selected from the group consisting of alanine (Ala), valine (Val), leucine (Leu), isoleucine (Ile), proline (Pro) phenylalanine (Phe), tryptophan (Trp), methionine

(Met), serine (Ser) bearing a hydrophobic protecting group, beta-naphthyl alanine, alpha-naphthyl alanine, norleucine, cyclohexylalanine, threonine (Thr) bearing a hydrophobic protecting group, tyrosine (Tyr) bearing a hydrophobic protecting group, lysine (Lys) bearing a hydrophobic protecting group, arginine (Arg) bearing a hydrophobic protecting group, ornithine (Orn) bearing a hydrophobic protecting group, aspartic acid (Asp) bearing a hydrophobic protecting group, cysteine (Cys) bearing a hydrophobic protecting group, and glutamic acid (Glu) bearing a hydrophobic protecting group.

4. The peptide of claim 3, wherein:

X^1 is is selected from the group consisting of Glu, Leu, Lys, Orn, Phe, Trp, and norLeu;

X^2 is selected from the group consisting of Asp, Arg, and Glu; and

X^4 is selected from the group consisting of Ser, Thr, Ile, Leu, Trp, Tyr, Phe, and norleu.

5. The peptide of claim 3, wherein

X^1 is is selected from the group consisting of Glu, Leu, Lys, Orn, Phe, Trp, and norLeu;

X^2 is selected from the group consisting of Lys, Arg, and His; and

X^4 is selected from the group consisting of Asp, Arg, and Glu.

6. The peptide of claim 2 wherein X^1 bears a hydrophobic protecting group.

7. The peptide of claim 6, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy

(BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

8. The peptide of claim 7, wherein said hydrophobic protecting group is selected from the group consisting of Boc, Fmoc, nicotinyl, and O*t*Bu.

9. The peptide of claim 6, wherein X^4 bears a hydrophobic protecting group.

10. The peptide of claim 9, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

11. The peptide of claim 10, wherein the N-terminus of said peptide is blocked with a protecting group selected from the group consisting of Boc-, Fmoc-, and Nicotinyl-.

12. The peptide of claim 10, wherein the C-terminus of said peptide is blocked with a protecting group selected from the group consisting of *t*Bu, and O*t*Bu.

13. The peptide of claim 2, wherein said peptide comprises the amino acid sequence of a peptide in Table 3.

14. The peptide of claim 2, wherein said peptide is a peptide from Table 3.

15. The peptide of claim 2, wherein said peptide comprises at least one D-amino acid.

16. The peptide of claim 2, wherein said peptide comprises all D-amino acids.

17. The peptide of claim 2, wherein said peptide comprises alternating D- and L- amino acids.

18. The peptide of claim 2, wherein said peptide comprises all L- amino acids.

19. The peptide of claim 2, wherein said peptide is mixed with a pharmacologically acceptable excipient.

20. The peptide of claim 2, wherein said peptide is mixed with a pharmacologically acceptable excipient suitable for oral administration to a mammal.

21. The peptide of claim 2, wherein said polypeptide is provided as a unit formulation in a pharmaceutically acceptable excipient.

22. The peptide of claim 2, wherein said polypeptide is provided as a time release formulation.

23. The peptide of claim 2, wherein said peptide protects a phospholipid against oxidation by an oxidizing agent

24. The peptide of claim 23, wherein said oxidizing agent is selected from the group consisting of hydrogen peroxide, 13(S)-HPODE, 15(S)-HPETE, HPODE, HPETE, HODE, and HETE.

25. The peptide of claim 23, wherein said phospholipid is selected from the group consisting of 1-palmitoyl-2-arachidonoyl-*sn*-glycero-3-phosphorylcholine (PAPC), 1-stearoyl-2-arachidonoyl-*sn*-glycero-3-phosphorylcholine (SAPC)), 1-stearoyl-2-arachidonyl-*sn*-glycero-3-phosphorylethanolamine (SAPE).

26. The peptide of claim 2, wherein said peptide is coupled to a biotin.

27. The peptide of claim 1, wherein:

n is 1; and

X^2 and X^3 are independently an acidic amino acid or a basic amino acid such that when X^2 is an acidic amino acid, X^3 is a basic amino acid and when X^2 is a basic amino acid, X^3 is an acidic amino acid.

28. The peptide of claim 27, wherein wherein X^1 and X^4 are independently selected from the group consisting of alanine (Ala), valine (Val), leucine (Leu), isoleucine (Ile), proline (Pro), phenylalanine (Phe), tryptophan (Trp), methionine (Met), serine (Ser) bearing a hydrophobic protecting group, beta-naphthyl alanine, alpha-naphthyl alanine, norleucine, cyclohexylalanine, threonine (Thr) bearing a hydrophobic protecting group, tyrosine (Tyr) bearing a hydrophobic protecting group, lysine (Lys) bearing a hydrophobic protecting group, arginine (Arg) bearing a hydrophobic protecting group, ornithine (Orn) bearing a hydrophobic protecting group, aspartic acid (Asp) bearing a hydrophobic protecting group, cysteine (Cys) bearing a hydrophobic protecting group, and glutamic acid (Glu) bearing a hydrophobic protecting group.

29. The peptide of claim 28, wherein

X^2 and X^3 are independently selected from the group consisting of Asp, Glu, Lys, Arg, and His.

30. The peptide of claim 28, wherein

X^2 and X^3 are independently selected from the group consisting of Asp, Arg, and Glu.

31. The peptide of claim 29 wherein X^1 bears a hydrophobic protecting group.

32. The peptide of claim 31, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

33. The peptide of claim 31, wherein said said hydrophobic protecting group is selected from the group consisting of Boc, Fmoc, nicotinyl, and O*t*Bu.

34. The peptide of claim 31, wherein X^4 bears a hydrophobic protecting group.

35. The peptide of claim 34, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a

hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

36. The peptide of claim 31, wherein the N-terminus of said peptide is blocked with a protecting group selected from the group consisting of Boc-, Fmoc-, and Nicotinyl-.

37. The peptide of claim 31, wherein the C-terminus of said peptide is blocked with a protecting group selected from the group consisting of *t*Bu, and O*t*Bu.

38. The peptide of claim 27, wherein said peptide comprises the amino acid sequence of a peptide in Table 4.

39. The peptide of claim 27, wherein said peptide is a peptide from Table 4.

40. The peptide of claim 27, wherein said peptide comprises at least one D- amino acid.

41. The peptide of claim 27, wherein said peptide comprises all D-amino acids.

42. The peptide of claim 27, wherein said peptide comprises alternating D- and L- amino acids.

43. The peptide of claim 27, wherein said peptide comprises all L-amino acids.

44. The peptide of claim 27, wherein said peptide is mixed with a pharmacologically acceptable excipient.

45. The peptide of claim 27, wherein said peptide is mixed with a pharmacologically acceptable excipient suitable for oral administration to a mammal.

46. The peptide of claim 27, wherein said polypeptide is provided as a unit formulation in a pharmaceutically acceptable excipient.

47. The peptide of claim 27, wherein said polypeptide is provided as a time release formulation.

48. The peptide of claim 27, wherein said peptide protects a phospholipid against oxidation by an oxidizing agent

49. The peptide of claim 27, wherein said peptide is coupled to a biotin.

50. The peptide of claim 1, wherein:

n is 1; and

X^2, X^3 are independently an acidic, a basic, or a aliphatic amino acid with one of X^2 or X^3 being an acidic or a basic amino acid such that:

when X^2 is an acidic or a basic amino acid, X^3 is an aliphatic amino acid; and

when X^3 is an acid or a basic amino acid, X^2 is an aliphatic amino acid.

51. The peptide of claim 50, wherein wherein X^1 and X^4 are independently selected from the group consisting of alanine (Ala), valine (Val), leucine (Leu), isoleucine (Ile), proline (Pro), phenylalanine (Phe), tryptophan (Trp), methionine (Met), serine (Ser) bearing a hydrophobic protecting group, beta-naphthyl alanine, alpha-

naphthyl alanine, norleucine, cyclohexylalanine, threonine (Thr) bearing a hydrophobic protecting group, tyrosine (Tyr) bearing a hydrophobic protecting group, lysine (Lys) bearing a hydrophobic protecting group, arginine (Arg) bearing a hydrophobic protecting group, ornithine (Orn) bearing a hydrophobic protecting group, aspartic acid (Asp) bearing a hydrophobic protecting group, cysteine (Cys) bearing a hydrophobic protecting group, and glutamic acid (Glu) bearing a hydrophobic protecting group.

52. The peptide of claim 51, wherein

X^2 and X^3 are independently selected from the group consisting of Asp, Arg, Lys, Leu, Ile, and Glu.

53. The peptide of claim 51, wherein X^1 bears a hydrophobic protecting group.

54. The peptide of claim 53, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

55. The peptide of claim 53, wherein said said hydrophobic protecting group is selected from the group consisting of Boc, Fmoc, nicotinyl, and O*t*Bu.

56. The peptide of claim 53, wherein X^4 bears a hydrophobic protecting group.

57. The peptide of claim 56, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, OrBu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

58. The peptide of claim 53, wherein the N-terminus of said peptide is blocked with a protecting group selected from the group consisting of Boc-, Fmoc-, and Nicotinyl-.

59. The peptide of claim 53, wherein the C-terminus of said peptide is blocked with a protecting group selected from the group consisting of *t*Bu, and OrBu.

60. The peptide of claim 50, wherein said peptide comprises the amino acid sequence of a peptide in Table 5.

61. The peptide of claim 50, wherein said peptide is a peptide from Table 5.

62. The peptide of claim 50, wherein said peptide comprises at least one D- amino acid.

63. The peptide of claim 50, wherein said peptide comprises all D-amino acids.

64. The peptide of claim 50, wherein said peptide comprises alternating D- and L- amino acids.

65. The peptide of claim 50, wherein said peptide comprises all L-amino acids.

66. The peptide of claim 50, wherein said peptide is mixed with a pharmacologically acceptable excipient.

67. The peptide of claim 50, wherein said peptide is mixed with a pharmacologically acceptable excipient suitable for oral administration to a mammal.

68. The peptide of claim 50, wherein said polypeptide is provided as a unit formulation in a pharmaceutically acceptable excipient.

69. The peptide of claim 50, wherein said polypeptide is provided as a time release formulation.

70. The peptide of claim 50, wherein said peptide protects a phospholipid against oxidation by an oxidizing agent

71. The peptide of claim 50, wherein said peptide is coupled to a biotin.

72. The peptide of claim 1, wherein:

n is 1; and

X^2, X^3 are independently an acidic, a basic, or an aromatic amino acid with one of X^2 or X^3 being an acidic or a basic amino acid such that:

when X^2 is an acidic or a basic amino acid, X^3 is an aromatic amino acid; and

when X^3 is an acid or a basic amino acid, X^2 is an aromatic amino acid.

73. The peptide of claim 72, wherein wherein X^1 and X^4 are independently selected from the group consisting of alanine (Ala), valine (Val), leucine (Leu), isoleucine (Ile), proline (Pro), phenylalanine (Phe), tryptophan (Trp), methionine (Met), serine (Ser) bearing a hydrophobic protecting group, beta-naphthyl alanine, alpha-naphthyl alanine, norleucine, cyclohexylalanine, threonine (Thr) bearing a hydrophobic protecting group, tyrosine (Tyr) bearing a hydrophobic protecting group, lysine (Lys) bearing a hydrophobic protecting group, arginine (Arg) bearing a hydrophobic protecting group, ornithine (Orn) bearing a hydrophobic protecting group, aspartic acid (Asp) bearing a hydrophobic protecting group, cysteine (Cys) bearing a hydrophobic protecting group, and glutamic acid (Glu) bearing a hydrophobic protecting group.

74. The peptide of claim 73, wherein
X^2 and X^3 are independently is selected from the group consisting of Asp, Arg, Glu, Trp, Tyr, Phe, and Lys.

75. The peptide of claim 72, wherein X^1 bears a hydrophobic protecting group.

76. The peptide of claim 75, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z),

benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

77. The peptide of claim 75, wherein said said hydrophobic protecting group is selected from the group consisting of Boc, Fmoc, nicotinyl, and O*t*Bu.

78. The peptide of claim 75, wherein X^4 bears a hydrophobic protecting group.

79. The peptide of claim 78, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

80. The peptide of claim 75, wherein the N-terminus of said peptide is blocked with a protecting group selected from the group consisting of Boc-, Fmoc-, and Nicotinyl-.

81. The peptide of claim 75, wherein the C-terminus of said peptide is blocked with a protecting group selected from the group consisting of *t*Bu, and O*t*Bu.

82. The peptide of claim 72, wherein said peptide comprises the amino acid sequence of a peptide in Table 6.

83. The peptide of claim 72, wherein said peptide is a peptide from Table 6.

84. The peptide of claim 72, wherein said peptide comprises at least one D- amino acid.

85. The peptide of claim 72, wherein said peptide comprises all D- amino acids.

86. The peptide of claim 72, wherein said peptide comprises alternating D- and L- amino acids.

87. The peptide of claim 72, wherein said peptide comprises all L- amino acids.

88. The peptide of claim 72, wherein said peptide is mixed with a pharmacologically acceptable excipient.

89. The peptide of claim 72, wherein said peptide is mixed with a pharmacologically acceptable excipient suitable for oral administration to a mammal.

90. The peptide of claim 72, wherein said polypeptide is provided as a unit formulation in a pharmaceutically acceptable excipient.

91. The peptide of claim 72, wherein said polypeptide is provided as a time release formulation.

92. The peptide of claim 72, wherein said peptide protects a phospholipid against oxidation by an oxidizing agent

93. The peptide of claim 72, wherein said peptide is coupled to a biotin.

94. A peptide that ameliorates one or more symptoms of an inflammatory condition, said peptide having the formula:

$$X^1\text{-}X^2\text{-}X^3\text{-}X^4\text{-}X^5$$

wherein:

X^1 is a hydrophobic amino acid and/or bears a hydrophobic protecting group;

X^5 is a hydrophobic amino acid and/or bears a hydrophobic protecting group; and

X^2, X^3, and X^4 are independently selected aromatic amino acids or histidine; and

said peptide converts pro-inflammatory HDL to anti-inflammatory HDL or makes anti-inflammatory HDL more anti-inflammatory.

95. The peptide of claim 94, wherein wherein X^1 and X^5 are independently selected from the group consisting of alanine (Ala), valine (Val), leucine (Leu), isoleucine (Ile), proline (Pro), phenylalanine (Phe), tryptophan (Trp), methionine (Met), phenylalanine (Phe), tryptophan (Trp), methionine (Met), serine (Ser) bearing a hydrophobic protecting group, beta-naphthyl alanine, alpha-naphthyl alanine, norleucine, cyclohexylalanine, threonine (Thr) bearing a hydrophobic protecting group, tyrosine (Tyr) bearing a hydrophobic protecting group, lysine (Lys) bearing a hydrophobic protecting group, arginine (Arg) bearing a hydrophobic protecting group, ornithine (Orn) bearing a hydrophobic protecting group, aspartic acid (Asp) bearing a hydrophobic protecting group, cysteine (Cys) bearing a hydrophobic protecting group, and glutamic acid (Glu) bearing a hydrophobic protecting group.

96. The peptide of claim 95, wherein

X^2, X^3, and X^4 are independently is selected from the group consisting of Phe, Val, Trp, Tyr, and His.

97. The peptide of claim 94, wherein X^1 bears a hydrophobic protecting group.

98. The peptide of claim 97, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, OtBu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic

group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

99. The peptide of claim 97, wherein said said hydrophobic protecting group is selected from the group consisting of Boc, Fmoc, nicotinyl, and O*t*Bu.

100. The peptide of claim 97, wherein X^5 bears a hydrophobic protecting group.

101. The peptide of claim 100, wherein said hydrophobic protecting group is selected from the group consisting of t-butoxycarbonyl (Boc), Fmoc, nicotinyl, O*t*Bu, a benzoyl group, an acetyl (Ac), a carbobenzoxy, methyl, ethyl, a propyl, a butyl, a pentyl a hexyl ester, an N-methyl anthranilyl, and a 3 to 20 carbon alkyl, amide, a 3 to 20 carbon alkyl group, 9-fluoreneacetyl group, 1-fluorenecarboxylic group, 9-fluorenecarboxylic group, 9-fluorenone-1-carboxylic group, benzyloxycarbonyl (is also called carbobenzoxy mentioned above), Xanthyl (Xan), Trityl (Trt), 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt), 4-methoxy-2,3,6-trimethyl-benzenesulphonyl (Mtr), Mesitylene-2-sulphonyl (Mts), 4,4-dimethoxybenzhydryl (Mbh), Tosyl (Tos), 2,2,5,7,8-pentamethyl chroman-6-sulphonyl (Pmc), 4-methylbenzyl (MeBzl), 4-methoxybenzyl (MeOBzl), Benzyloxy (BzlO), Benzyl (Bzl), Benzoyl (Bz), 3-nitro-2-pyridinesulphenyl (Npys), 1-(4,4-dimethyl-2,6-dioxocyclohexylidene)ethyl (Dde), 2,6-dichlorobenzyl (2,6-DiCl-Bzl), 2-chlorobenzyloxycarbonyl (2-Cl-Z), 2-bromobenzyloxycarbonyl (2-Br-Z), benzyloxymethyl (Bom), cyclohexyloxy (cHxO),t-butoxymethyl (Bum), t-butoxy (tBuO), t-Butyl (tBu), trifluoroacetyl (TFA), 4[N-{1-(4,4-dimethyl-2,6-dioxocyclohexylidene)-3-

methyldibutyl)-amino}benzyl ester (ODmab), α-allyl ester (OAll), 2-phenylisopropyl ester (2-PhiPr), 1-[4,4-dimethyl-2,6-dioxycyclohex-1-yl-idene)ethyl (Dde).

102. The peptide of claim 94, wherein the N-terminus of said peptide is blocked with a protecting group selected from the group consisting of Boc-, Fmoc-, and Nicotinyl-.

103. The peptide of claim 94, wherein the C-terminus of said peptide is blocked with a protecting group selected from the group consisting of *t*Bu, and O*t*Bu.

104. The peptide of claim 94, wherein said peptide comprises the amino acid sequence of a peptide in Table 7.

105. The peptide of claim 94, wherein said peptide is a peptide from Table 7.

106. The peptide of claim 94, wherein said peptide comprises at least one D- amino acid.

107. The peptide of claim 94, wherein said peptide comprises all D-amino acids.

108. The peptide of claim 94, wherein said peptide comprises alternating D- and L- amino acids.

109. The peptide of claim 94, wherein said peptide comprises all L-amino acids.

110. The peptide of claim 94, wherein said peptide is mixed with a pharmacologically acceptable excipient.

111. The peptide of claim 94, wherein said peptide is coupled to a biotin.

112. A peptide that ameliorates one or more symptoms of an inflammatory condition, wherein said peptide:

ranges in length from 5 to 11 amino acids;

the terminal amino acids are hydrophobic amino acids and/or bear hydrophobic protecting groups;

the non-terminal amino acids form at least one acidic domain and at least one basic domain; and

said peptide converts pro-inflammatory HDL to anti-inflammatory HDL or makes anti-inflammatory HDL more anti-inflammatory.

113. A peptide that ameliorates one or more symptoms of an inflammatory condition, wherein said peptide:

ranges in length from 5 to 11 amino acids;

the terminal amino acids are hydrophobic amino acids and/or bear hydrophobic protecting groups;

the non-terminal amino acids form at least one acidic domain or one basic domain and at least one aliphatic domain; and

said peptide converts pro-inflammatory HDL to anti-inflammatory HDL or makes anti-inflammatory HDL more anti-inflammatory.

114. A peptide that ameliorates one or more symptoms of an inflammatory condition, wherein said peptide:

ranges in length from 5 to 11 amino acids;

the terminal amino acids are hydrophobic amino acids and/or bear hydrophobic protecting groups;

the non-terminal amino acids form at least one acidic domain or one basic domain and at least one aromatic domain; and

said peptide converts pro-inflammatory HDL to anti-inflammatory HDL or makes anti-inflammatory HDL more anti-inflammatory.

115. A peptide that ameliorates one or more symptoms of an inflammatory condition, wherein said peptide:

ranges in length from 6 to 11 amino acids;

the terminal amino acids are hydrophobic amino acids and/or bear hydrophobic protecting groups;

the non-terminal amino acids form at least one aromatic domain or two or more aromatic domains separated by one or more histidines; and

said peptide converts pro-inflammatory HDL to anti-inflammatory HDL or makes anti-inflammatory HDL more anti-inflammatory.

116. A peptide that amelioriates one or more symptoms of atherosclerosis, said peptide comprising:

a peptide or a concatamer of a peptide that:

ranges in length from about 10 to about 30 amino acids;

comprises at least one class A amphipathic helix;

comprises one or more aliphatic or aromatic amino acids at the center of the non-polar face of said amphipathic helix;

protects a phospholipid against oxidation by an oxidizing agent; and

is not the D-18A peptide.

117. The peptide of claim :116, wherein said peptide has the amino acid sequence of a peptide in Table 2.

118. The peptide of claim : 116, wherein said peptide has the amino acid sequence and blocking groups of a peptide in Table 2.

119. A peptide that amelioriates one or more symptoms of atherosclerosis, said peptide comprising:

a peptide or a concatamer of a peptide that:

ranges in length from about 10 to about 30 amino acids;

comprises at least one class A amphipathic helix;

protects a phospholipid against oxidation by an oxidizing agent; and

is covalently coupled to a biotin.

120. The peptide of claim 119, wherein said peptide is covalently coupled to a biotin through a lysine (Lys).

121. The peptide of claim 119, wherein said peptide has the amino acid sequence of a peptide in Table 10.

122. The peptide of claim 119, wherein said peptide is a peptide of Table 10.

123. A pharmaceutical formulation comprising:

one or more peptides according to claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119; and

a pharmaceutically acceptable excipient.

124. The pharmaceutical formulation of claim 123, wherein the peptide is present in an effective dose.

125. The pharmaceutical formulation of claim 123, wherein the peptide is in a time release formulation.

126. The pharmaceutical formulation of claim 123, wherein the formulation is formulated as a unit dosage formulation.

127. The pharmaceutical formulation of claim 123, wherein the formulation is formulated for oral administration.

128. The pharmaceutical formulation of claim 123, wherein the formulation is formulated for administration by a route selected from the group consisting of oral administration, nasal administration, rectal administration, intraperitoneal injection, intravascular injection, subcutaneous injection, transcutaneous administration, inhalation administration, and intramuscular injection.

129. A kit comprising:

a container containing one or more of the peptides according to claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119; and

instructional materials teaching the use of the peptide(s) in the treatment of a pathology characterized by inflammation.

130. The kit of claim 129, wherein said pathology is a pathology selected from the group consisting of atherosclerosis, rheumatoid arthritis, lupus erythematous, polyarteritis nodosa, osteoporosis, Altzheimer's disease and a viral illnesses.

131. A method of mitigating one or more symptoms of atherosclerosis in a mammal, said method comprising administering to said mammal an effective amount of the peptide of claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119.

132. The method of claim 131, wherein said peptide is in a pharmaceutically acceptable excipient.

133. The method of claim 131, wherein said peptide is administered in conjunction with a lipid.

134. The method of claim 131, wherein said peptide is in a pharmaceutically acceptable excipient suitable for oral administration.

135. The method of claim 131, wherein said peptide is administered as a unit dosage formulation.

136. The method of claim 131, wherein said administering comprises administering said peptide by a route selected from the group consisting of oral administration, nasal administration, rectal administration, intraperitoneal injection, intravascular injection, subcutaneous injection, transcutaneous administration, and intramuscular injection.

137. The method of claim 131, wherein said mammal is a mammal diagnosed as having one or more symptoms of atherosclerosis.

138. The method of claim 131, wherein said mammal is a mammal diagnosed as at risk for stroke or atherosclerosis.

139. The method of claim 131, wherein said mammal is a human.

140. The method of claim 131, wherein said mammal is non-human mammal.

141. A method of mitigating one or more symptoms of an inflammatory pathology, , said method comprising administering to said mammal an effective amount of the peptide of claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119.

142. The method of claim 141, wherein said inflammatory pathology is a pathology selected from the group consisting of atherosclerosis, rheumatoid arthritis, lupus erythematous, polyarteritis nodosa, osteoporosis, Altzheimer's disease, multiple sclerosis, and a viral illnesses.

143. The method of claim 141, wherein said peptide is in a pharmaceutically acceptable excipient.

144. The method of claim 141, wherein said peptide is administered in conjunction with a lipid.

145. The method of claim 141, wherein said peptide is in a pharmaceutically acceptable excipient suitable for oral administration.

146. The method of claim 141, wherein said peptide is administered as a unit dosage formulation.

147. The method of claim 141, wherein said administering comprises administering said peptide by a route selected from the group consisting of oral administration, nasal administration, rectal administration, intraperitoneal injection, intravascular injection, subcutaneous injection, transcutaneous administration, and intramuscular injection.

148. The method of claim 141, wherein said mammal is a mammal diagnosed as at risk for stroke.

149. The method of claim 141, wherein said mammal is a human.

150. The method of claim 141, wherein said mammal is non-human mammal.

151. A method of enhancing the activity of a statin in a mammal, said method comprising coadministering with said statin an effective amount of the peptide of claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119.

152. The method of claim 151, wherein said statin is selected from the group consisting of cerivastatin, atorvastatin, simvastatin, pravastatin, fluvastatin, lovastatin. rosuvastatin, and pitavastatin.

153. The method of claim 151, wherein said peptide is administered simultaneously with said statin.

154. The method of claim 151, wherein said peptide is administered before said statin.

155. The method of claim 151, wherein said peptide is administered after said statin.

156. The method of claim 151, wherein said peptide and/or said statin are administered as a unit dosage formulation.

157. The method of claim 151, wherein said administering comprises administering said peptide and/or said statin by a route selected from the group consisting of oral administration, nasal administration, rectal administration, intraperitoneal injection, intravascular injection, subcutaneous injection, transcutaneous administration, and intramuscular injection.

158. The method of claim 151, wherein said mammal is a mammal diagnosed as having one or more symptoms of atherosclerosis.

159. The method of claim 151, wherein said mammal is a mammal diagnosed as at risk for stroke or atherosclerosis.

160. The method of claim 151, wherein said mammal is a human.

161. The method of claim 151, wherein said mammal is non-human mammal.

162. A method of mitigating one or more symptoms associated with atherosclerosis in a mammal, said method comprising:

administering to said mammal an effective amount of a statin; and

an effective amount of a peptide of claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119;

wherein the effective amount of the statin is lower than the effective amount of a statin administered without said peptide.

163. The method of claim 162, wherein the effective amount of the peptide is lower than the effective amount of the peptide administered without said statin.

164. The method of claim 162, wherein said statin is selected from the group consisting of cerivastatin, atorvastatin, simvastatin, pravastatin, fluvastatin, lovastatin. rosuvastatin, and pitavastatin.

165. The method of claim 162, wherein said peptide is administered simultaneously with said statin.

166. The method of claim 162, wherein said peptide is administered before said statin.

167. The method of claim 162, wherein said peptide is administered after said statin.

168. The method of claim 162, wherein said peptide and/or said statin are administered as a unit dosage formulation.

169. The method of claim 162, wherein said administering comprises orally administering said composition.

170. The method of claim 162, wherein said administering is by a route selected from the group consisting of oral administration, nasal administration, rectal administration, intraperitoneal injection, intravascular injection, subcutaneous injection, transcutaneous administration, inhalation administration, and intramuscular injection.

171. The method of claim 162, wherein said mammal is a mammal diagnosed as having one or more symptoms of atherosclerosis.

172. The method of claim 162, wherein said mammal is a mammal diagnosed as at risk for stroke or atherosclerosis.

173. The method of claim 162, wherein said mammal is a human.

174. The method of claim 162, wherein said mammal is non-human mammal.

175. A pharmaceutical formulation, the formulation comprising:
a statin and/or Ezetimibe; and
a peptide or a concatamer of a peptide according to any of claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119.

176. The pharmaceutical formulation of claim 175, wherein the peptide and/or the statin are present in an effective dose.

177. The pharmaceutical formulation of claim 176, wherein the effective amount of the statin is lower than the effective amount of the statin administered without the peptide.

178. The pharmaceutical formulation of claim 176, wherein the effective amount of the peptide is lower than the effective amount of the peptide administered without the statin.

179. The pharmaceutical formulation of claim 176, wherein the effective amount of the Ezetimibe is lower than the effective amount of the Ezetimibe administered without the peptide.

180. The pharmaceutical formulation of claim 176, wherein the effective amount of the peptide is lower than the effective amount of the peptide administered without the Ezetimibe.

181. The pharmaceutical formulation of claim 175, wherein the statin is selected from the group consisting of cerivastatin, atorvastatin, simvastatin, pravastatin, fluvastatin, lovastatin. rosuvastatin, and pitavastatin.

182. The pharmaceutical formulation of claim 175, wherein the Ezetimibe, the statin, and/or the peptide are in a time release formulation.

183. The pharmaceutical formulation of claim 175, wherein the formulation is formulated as a unit dosage formulation.

184. The pharmaceutical formulation of claim 175, wherein the formulation is formulated for oral administration.

185. The pharmaceutical formulation of claim 175, wherein the formulation is formulated for administration by a route selected from the group consisting of oral administration, nasal administration, rectal administration, intraperitoneal injection, intravascular injection, subcutaneous injection, transcutaneous administration, inhalation administration, and intramuscular injection.

186. The pharmaceutical formulation of claim 175, wherein the formulation further comprises one or more phospholipids.

187. A method of reducing or inhibiting one or more symptoms of osteoporosis in a mammal, the method comprising administering to the mammal one or more peptide according to claims 1, 2, 27, 50, 72, 94, 112, 113, 115, 116, and 119, wherein the peptide is administered in a concentration sufficient to reduce or eliminate one or more symptoms of osteoporosis.

188. The method of claim 187, wherein the peptide is administered in a concentration sufficient to reduce or eliminate decalcification of a bone.

189. The method of claim 187, wherein the peptide is administered in a concentration sufficient to induce recalcification of a bone.

190. The method of claim 187, wherein the peptide is mixed with a pharmacologically acceptable excipient.

191. The method of claim 187, wherein the peptide is mixed with a pharmacologically acceptable excipient suitable for oral administration to a mammal.